men described by Valenciennes*, but which Owen has also observed†.

5. That the number of the apertures of the pouches adjacent to the pericardium is such as Valenciennes‡ has stated, so that Owen § seems to have been mistaken with respect to their number. It has also seemed to us that the pouches do not communicate with the pericardium, but that they are blind sacs, without any other apertures than those which communicate with the branchial sac; facts also observed by Valenciennes.

6. That the anus is by no means situated as Valenciennes has figured it‖, viz. at the bottom of the fissure formed by the two muscles; but that it is, on the contrary, placed at a great distance from that part, close to the lamellated organ, which Owen states to be in relation with the oviduct and in the semilunar fissure formed by that organ.

7. That there is a distinct foramen in the pericardium, precisely similar to that which Owen¶ has described and figured, and which Valenciennes, consequently, erroneously denies. However, I am not certain that it communicates with the siphon; and I regret that the animal, being detached from the siphon, it was not possible for us to determine whether the hypothesis which Buckland** has proposed, in accordance with a drawing by Owen, is quite accurate. It is a point which deserves to be studied afresh. With respect to the foramen itself of the pericardium, it cannot be doubted that it exists, and that it gives passage to an artery. Requesting, Gentlemen, that you will insert this letter in your estimable Journal,

I have the honour to be, your obedient servant,

W. Vrolik.

XXIII.—*Description of the Lurking Machete* (Machærium subducens) *from the northern coast of New Holland.* By John Richardson, M.D., F.R.S. &c., Inspector of Naval Hospitals.

[With a Plate.]

The fish which forms the subject of this notice inhabits, in small numbers, the various bays of Port Essington, where it lurks under the mud in shallow waters. The aborigines name it "Ambeet-unbeet." Mr. Gilbert, assistant to Mr. Gould, brought home a single specimen of the dried skin of one side, which was presented

* Nouvelles Recherches sur le Nautile flambé, 4to, 1839; Archives du Muséum, tom. ii. p. 279.

† *loc. cit.* p. 20.

‡ *loc. cit.* p. 285.

§ *loc. cit.* p. 27.

‖ *loc. cit.* pl. 10. fig. 1. *w.*

¶ *loc. cit.* p. 27. pl. 5. *o.*

** Bridgewater Treatise, pl. 34.

by Mr. Gould to the British Museum. It is from this example alone that the following description of the species was taken. The want of anatomical details prevents me from pointing out the systematic position of the fish with any confidence; but in a short paper which was read at the Manchester Meeting of the British Association in June 1842*, I stated, on the strength of external characters only, that it most probably belongs to a generic or subgeneric group of the *Ophidia*, and that it bears a strong general resemblance to the *Echiodon drummondii* of Thompson, though its dentition is dissimilar. The genus *Ophidium*, which is ranged by Cuvier with the *Anguilliformes*, ought perhaps, with the addition of the Machetes, Echiodons, Fierasfers, and some other fish, to form a proper family near the *Gadidæ*, and likewise to the Blennies, which should also be removed to that part of the system, as I have hinted in the paper quoted above. The more remarkable characters of *Machærium* may be summed up as follows:—

Piscis malacopterygius, apodus, ensiformis, squamosus. Apertura branchialis satis magna sub gula extensa. Radii membranæ branchiostegæ sex. Opercula conspicua. Os modice extensivum. Dentes parvi, uniseriales in ossibus intermaxillaribus et in maxilla inferiore, quæ rictum efficiunt, ordinati. Genæ et regiones suprascapulares squamosæ. Pinnæ verticales coalitæ, radiis spinosis nullis. Pinna dorsi per totum fere dorsum regnans. Linea lateralis brevis super anum desinens.

MACHÆRIUM SUBDUCENS (*Rich.*), Lurking Machete. Plate VI.

Rep. Brit. Assoc. for 1842, p. 69.

Form elongated and compressed like a *Gunnellus* or *Ophidium*, and similar to a straight sword or butcher's knife, whence its generic appellation †. The profile of its body is semilanceolate, and its greatest height, which is to be found a short way before the vent, is comprised $9\frac{1}{2}$ times in the total length of the fish. The tail, though regularly lanceolate, is not acute. The exact degree of compression of the body cannot be determined from our solitary specimen, owing to the manner in which it has been prepared.

The head, blunt and somewhat less high than the body, is evidently considerably compressed. Its anterior extremity is formed by the tips of the jaws, the lower jaw being rather the longest; its upper profile descends from the line of the back by a low convex curve; its under profile is flattish. The rictus of the closed jaws runs backwards and slightly downwards to beneath the centre of the eye. It is formed above by the strong intermaxillaries, whose stout tapering pedicles equal the dental portion in length, and

* Vide Report of the Twelfth Meeting, Transactions of Sections, p. 69.

† Th. *μάχαιρα gladius.*

work backwards over the orbits. The maxillary lies entirely behind the intermaxillary, is less strong and is nearly of equal width throughout, except that a shoulder projects anteriorly from its upper third. A knob close to its articular condyle projects into the roof of the mouth. The under jaw is still stronger than the upper one, and runs far back, behind the eye, a small heel projecting beyond its articular cavity and forming a point on the side of the gill-membrane. About five pores exist on its flat under-surface. The lips, covering both jaws, are tolerably thick, and of a clear greenish colour even in the dried specimen. The under one folds back on the sides of the jaw, but the fold does not extend round the symphysis. The round eye, having a diameter equal to one-sixth of the length of the head, is placed two diameters behind the tip of the upper jaw, near the profile, but not interfering with it, and three diameters before the gill-opening. Suborbital chain narrow, smooth, subtubular, but not distinctly porous. The preorbital embraces a quadrant of the orbit, and is wider than the rest of the chain; its width is increased at its posterior end, under the centre of the eye, by a descending corner. Top of the head smooth and rounded off laterally, particularly behind the eye. Cheek large, scaly, quinquelateral. It is bounded above by a line running horizontally between the upper third of the orbit and the upper end of the preoperculum; posteriorly by the nearly upright, slightly curved, narrow disc of this bone; inferiorly by nearly one-third of the length of the lower jaw, and anteriorly by the lower half of the maxillary below and the orbit above. Its scales are similar in size and tiling to those of the body. The space bounded by the upper edge of the operculum and the scapular and suprascapular bones is also similarly scaly. The gill-covers and the rest of the head are clothed with smooth skin. A curve in the upper third of the preoperculum gives its lower part a slight inclination forwards. The interoperculum is parallel to the lower half of the preoperculum and swells into a rounded ridge, whose end appears to form a fulcrum or joint on which the projecting heel of the lower jaw moves. The subooperculum has a curved exterior edge, a subquadrate disc, and the process which rises before the operculum swelling into a rounded ridge. The operculum is triangular, with two smooth rounded ridges diverging from its articular angle, one bounding the bone anteriorly, the other running near its upper edge, and ending in a flat, obtuse, slightly projecting tip. The posterior edge of the bone, beneath this tip, has a slight sigmoid flexure. There are no spinous points on any of the bones of the head. The gill-flap is bordered by membrane, which at its upper part unites with the branchiostegous membrane and the integuments of the humeral chain, closing the gill-opening down to the bend of the co-

racoid bone or upper axilla of the pectoral fin. The lower edges of the suboperculum and interoperculum are free and overlap the conspicuous gill-rays, which are six in number, strong, round and curved. The gill-opening, though low, is moderately large, and extends forwards to beneath the joint of the lower jaw. The humeral chain consists of suprascapular, scapular and coracoid.

The scales are cycloid, tiled, exposing a longitudinally elliptical surface and firmly imbedded in the skin. There are about thirty in a vertical row. The lateral line is composed of fifty small eminences, and terminates opposite to the tenth dorsal ray.

Rays:—Br. 6; D. 70; A. 59; C. 9; P. 10; V. 0.

All the rays of all the fins are jointed: the first rays of the dorsal and anal are simple; the other rays of these fins are divided at their tips into about four branches which do not spread, and the rays are slender and stand well apart in the strong membrane. The dorsal rays increase gradually in length from the first to near the middle of the fin, after which they continue equal to the end of the fin. The anal is more nearly equal throughout. Both fins are pointed at the end, but the points are not conspicuous, the space between them being filled by the caudal fin, whose rays are much finer, more crowded and somewhat shorter. The pectoral is small and rounded, its rays slender, crowded and branched. The interspinous bones of the back correspond in number with the dorsal rays.

Dimensions.	inches.
Length from intermaxillary symphysis to end of caudal fin...	13·80
——————————— base of ditto	13·38
——————————— beginning of anal.	4·50
——————————— centre of anus.....	4·25
——————————— beginning of dorsal	2·35
——————————— gill-opening	1·65
——————————— centre of eye	0·65
Length of rictus of mouth	0·60
——— lower jaw	1·15
Diameter of eye	0·22
Height of head	0·95
——— body about	1·30
——— dorsal fin posteriorly	0·60
——— anal fin	0·35
Length of pectoral fin	0·45

XXIV.—*Additional Observations on the Polygastric Sacculi.*

By John Wm. Griffith, M.D., F.L.S. &c.

To the Editors of the Annals of Natural History.

Gentlemen,

A paper having been inserted in the last number of your Journal (p. 104) by Mr. Addison, tending to the conclusion that the inaccu-